1: Washington S-4 (no date) 1956 AF13 Northwest China AF13

INDUSTRY

A The Pre-Communist Period

*175 47 The Northwest was an industrially backward area in China. Before the Sino-Japanese War (1937-1945), over ninety percent of China's modern industrial plants were located in the coastal provinces, and very few people paid any attention to the industrial potential of this area. During the war years when the coastal provinces were lost to Japan, the importance of the Northwest greatly increased, and efforts were made to develop its industrial production in order to cope with the shortage of goods. But under the difficult conditions during the war, progress was very slow. Up to the end of 1942, the major industries in the Northwest were still limited to the manufacture of woolen, cotton and leather goods, machine tools, and flour-refining. (Handicrafts are not included, because of the lack of information.)

1. The woolen industry

*175 288 474 The woolen industry in the Northwest was distributed among the following cities: in Lanchou, Kansu, there were thirteen factories and thirteen cooperatives engaged in woolen manufacturing. The biggest one was the Kansu Woolen Weaving [471] Factory, which was built by Tso Tsung-tang in 1876 with a capital of some L 80,000. Equipped with a 240 horsepower generator and twenty-one machine looms, it began production in 1879, turning out some twenty pieces of woolen cloth per day. But production of this factory was interrupted from time to time due to political instabilities and other reasons. It did not fully come back to life until after the Sino-Japanese War when the Ministry of War took it over and changed it into a blanket-making factory for the armed forces. The next was the [471] Lanchou Woolen Weaving Factory, which had a capital of CNC $600,000, and which produced some CNC$6,000,000 worth of goods in 1942. Another is the Experimental Factory of the Weaving Cooperatives, which turned out some CNC$5,400,000 worth of goods in the same year. The rest were on a very small scale, using only hand looms. The twenty-six woolen [433] [471] factories and cooperatives in Lanchou had a total capital of CNC $2,800,000, and they produced 95,600 army blankets, 30,400 ordinary blankets, 800 square feet fine woolen, and 1,062 pieces of other woolen cloth in 1942, the value of which was CNC$22,600,000.

In Yü-lin, Shensi, there were nineteen small factories and nine industrial cooperatives. They had 204 looms in all. But only one was power-operated, and the rest were hand looms. The output of the industry as a whole was not reported, but it is known that the raw wool which they consumed during one

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*175 year exceeded 2,000,000 catties, or some 2,600,000 pounds.
288 There were twenty-five factories in other cities in Shensi,
474 of which number thirteen were in Sian, nine in Pao-chi, and one each in San-yuan, Ta-li and Pai-shui. Their output was also not disclosed, but their annual consumption of raw wool was reported as 720,000 catties ching, much smaller than that in
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[433] Yu-lin. Besides, there were ten cooperatives in Sian and Pao-chi, which could produce 600,000 to 700,000 army blankets per year.

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[471] In Ninghsia, there were five small factories with a total
[433] capital of CNC$230,000. They produced some CNC$1,200,000 worth of goods in 1941. All of them were using hand looms.

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[288] In Sinkiang, there was one woolen factory in operation, but details are lacking. There is no report of woolen factories or cooperatives in Chinghai.

N 2. The cotton industry
*175 The development of cotton industry in the Northwest was
288 mainly stimulated by the Sino-Japanese War. Before 1937, there was not a single modern cotton factory in this area. But during the war, many factories had moved from the Japanese-occupied areas to Shensi, and many new ones were built there. In 1942, the total number of spindles exceeded 60,000, and the annual consumption of raw cotton was 130,000 piculs, about twelve percent of the total production of Shensi.

N 3. The machine tool industry
392 There were forty-five machine shops in Shensi, six in
S Kansu, and three in Sinkiang. The more important ones are as
[392] follows:

1. Hsi-ching Machine Factory, Sian, which was built around 1910 and equipped with fifty-five tool-making machines such as lathe, planing, drilling and pressing machines. Its annual capacity was as follows: four lathe, three water-pumping machines, ten iron looms, five cotton extracting machines, twenty ginning machines, five printing machines, and a number of paper-making machines. Besides, it also accepted orders for the repair of machinery and weapons of war.

2. Hsi-ching Machine Repairing Factory, Sian, the main job of which was to make auto parts. Its monthly output was 90 pistons, 2,500 piston rings and 180 gears, enough for the maintenance of eighty trucks.

3. An iron works, operated by the army, which turned out some twenty looms per month, and also basic machine tools.

4. The Northwest Machine Factory, which had more than eighty basic machine tools, such as lathe, planing machine, drilling machine, etc., was perhaps the largest machine shop in the Northwest, and its main task was to make looms and parts for the textile industry.

4. The leather Industry

282 There were eleven tanning or leather goods factories in Shensi and twelve in Kansu. Their total capacity was 180,000 (433) pieces of hide per year, which amounted to only eighteen percent of the total production of hide in the Northwest.

Two factories were partly equipped with machinery. One was the Northwest Chemical Leather-making Factory in Sian, which had mechanical press, mechanical brush, sprayers, and its own generator. It used more than one thousand pieces of raw hide per month, and its output included shoes, belts, and other leather goods. The other was the Lanchow Leather-Making Factory, which had mechanized sander, sewing machines, pumps, and other equipment. Its products included leather and leather goods. The rest were small factories, using very simple tools.

5. The flour industry

256 There were eight modern flour mills in Shensi and two in (433) Kansu, with a total capacity of 6,500,000 bags per year. On the basis that one bag of flour requires fifty-four catties of wheat, it was estimated that the total quantity of wheat used by the flour industry was 3,500,000 piculs per year, about 7.5 percent of the total production of wheat in the Northwest.

(433) The larger mills, such as the Hua-feng Flour Co. and Cheng-feng Flour Co. in Sian, and the Fo-hsin Flour Factory in Pao-chi, produce 3,000 to 5,000 bags per day. The rest were under one thousand.

6. Miscellaneous

388 (a) Soap-making. There were five small soap factories in (433) Shensi and four in Kansu. The total annual output was some 35,000 cases, which satisfied only a small part of the demand for soap in the Northwest.

289 (b) Paper. Paper-manufacturing was one of the main handicrafts in the Northwest which may be found in many places, but details were not available.

339 (c) Cement. The first cement factory was established in (491) Shensi in 1938, with a capital of CNC$200,000. It had nineteen kilns which turned out six or seven barrels a day. In 1939, another factory was built in Shensi, with a capital of CNC $2,000,000. Its capacity was around 18,000 barrels a year, but the quality of its products was very poor. Still another factory was under construction in Kansu, with a capital of 4,500,000. But up to the end of 1942, it had not yet begun production.

315 (d) Oil. Oil has been produced in north Shensi and Kansu for over a thousand years. But it was not until the early twentieth century that modern methods of extraction were used. Since then, five or six wells have been drilled in north Shensi. During the Sino-Japanese War, the Chinese government was very much

Tsaidam basin and developing the economy and culture of the national minorities.

Up to the beginning of 1956, the railway mileage in the Northwest region was increased to roughly 1800 kilometers from some 600 kilometers prior to 1949.

Based on the above-mentioned data, new railway construction in this region may be tabulated as follows:

Railway Construction in Northwest China
1950-1955
in kilometers

Line	length planned	date started	date completed	to 1955	Total
T'ien-shui-Lanchou	346	1950	1952	346	
Lanchou-Sinkiang a	2,800	1952	- -	646	
Paoki-Chengtu b	700	1952	1956	485	
Lanchou-Paotow	1,000	1955	- -	- -	
Lanchou-Chinghai c	1,500	1956	- -	- -	
Total				1,477[e]	3660[d]

a. To the end of 1955.
b. Of the total 485 kms. only about 100 kms were in Shensi.
c. Newly projected route
d. Based on the table of "Construction of New Railways in Chinese Mainland, 1950-1955" in Communication section of General Handbook.
e. Of the 1477 kms. about 1100 kms. were built in the Northwest region.

As shown in the above table, about thirty per cent of the total of new railways was built in this Northwest area. As officially reported, Communist China has scheduled to spend, on transport and communication projects, over 140 million taels of gold (1 tael is equal to 1.1023 ounces) of investments totalling over 700 million taels in capital construction during the First Five Year Plan. ("A Great Plan" People's China, August 1, 1955, pp. 5-6.) It appears clear that a very large amount has been spent on railway construction in this region, though no breakdown figure can be located. With regard to railway building materials, the same source indicated that "after reconstruction of the factories, Anshan alone will produce enough rolled steel to meet the needs of the nation's locomotive-building works, shipyards and motor and tractor works throughout the first Five Year Plan and the early part of the second. Anshan's annual output of rails will be sufficient for the laying of more than 3000 kilometers." It should be noted that at least up to the beginning of the first Five Year Plan, most of the materials for railroad building had to be supplied by the Soviet Bloc, particularly Russia.

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The pronunciation of Hsingan on the Han River and Hsian, the provincial capital in the Wei River basin, is almost identical, and as the Chinese themselves sometimes misunderstand one another when referring to them in conversation, it is rather a hopeless task for the foreigner. The two names are really Hsing-ngan and Hsi-ngan. If one wishes to make certain of being understood one should refer to Hsingan by its old name of Hsingan Chou or its new one of Ank'ang Hsien (not really new as this was always the name of the district), and to Hsian as Hsian Sheng or Ch'angan Hsien.

The American Railway Group, having secured the concession for the construction of a certain mileage of railways in China wherever they could find room between the staked out claims of other Powers, have, according to the newspapers, elected the upper Han valley as one of the scenes of their activities, and propose, it is said, to build a line from Laoho K'ou up the valley of the Han into Shensi, and thence across the mountains into Szechuan. In view of the richness of the country it will tap, and to the fact that it is not unlikely to be the first line to solve the great problem of the railway penetration of Szechuan, the object of so many schemes, this Han Valley Railway constitutes one of the most interesting and attractive of the many railway propositions at present in contemplation in China.

We remained at Hsingan two days, during which it rained incessantly. The climate of the Han valley is rather a treacherous one and fevers are common. We were now bound up the Han basin to Hanchung, a distance of 650 li. The road we followed is the main highway through this region, though much of the way only a mountain footpath eighteen inches wide. Most of the traffic, however, goes by river. Like most of the roads in the Han basin it is really a track for coolie porters, but mules and ponies can travel by it easily enough except for one stage along the Han River beyond Shihch'uan, which is rather dangerous for pack animals. As the main road connecting two such important places as Hsingan and Hanchung it well illustrates the extraordinarily roadless condition of China. Nor in these days of railway construction is it likely that China will ever be provided with roads as the word is understood in other civilized

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135 316 just outside the South Gate of the little city of Yench'ang Hsien, two marches east of Yenan, and about 1906 two wells were sunk on the spot with the assistance of Japanese engineers and Japanese machinery.

Some seven years later the Standard Oil Company of New York conceived the idea of exploiting the supposed oil deposits of North China and negotiated a co-operative agreement with the Chinese Government, which was signed in February 1914, to the following effect.

316 471 The Standard Oil Company was to send experts to examine the supposed oil fields in Northern Shensi and Northern Chihli, the expenses of the survey being borne jointly by the Company and the Chinese Government. If the reports of these experts proved favourable, a Sino-American Company was to be formed, which should begin operations within six months of the completion of the survey. Capitalisation of the Company to be 55 per cent. Standard Oil, and 37½ per cent. Chinese Government (the latter being presented with their shares by the Company in exchange for the concession); and 7½ per cent. optional for the Chinese Government to purchase at par. Any increase in capital to be on the same terms, and the management to be Sino-American in the same proportion. The Chinese Government undertook that the exploitation of the oil fields named should be given exclusively to the Standard Oil Company, and that no concession whatsoever for oil-bearing properties in China should be given to any other foreigner until the results of the Company's operations should be apparent to the Chinese Government and the Standard Oil Company, which period should not exceed one year from the date of signing the contract. The agreement to last for sixty years, during which time the Chinese Government would not allow any other foreigners to produce oil in the districts named. In the event of the districts in question (apparently Yenan and Yench'ang in Shensi and Jehol in Chihli) proving worthless, any other districts in Shensi and Chihli to be substituted therefore. Concessions to be granted for the necessary railways and pipe-lines. The Chinese Government to arrange matters with the landowners. The acceptance of the terms of the agreement by the Standard Oil Company to be entirely dependent on the result of the examination by experts.

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The above is taken from the newspapers published at the time and may or may not be correct. The remaining facts regarding the history of the enterprise are given from conversations with local Chinese on the subject, and also may or may not accurately represent what occurred.

Anyone acquainted with the vastness of the trade in petroleum, imported from the East Indies by a British Company and from the United States by an American Company, which has come into existence of recent years in China, and the remarkable manner in which this oil penetrates to all but the most distant portions of the country in spite of transport difficulties and likin exactions, will realise what a magnificent proposition this agreement would have been for the Standard Oil Company had the enterprise succeeded; but it is also obvious that it would have been equally of enormous advantage and profit to the Chinese Government, since without foreign assistance the Chinese are at present as incapable of developing such a proposition as they are of building a railway to the moon.

An inspection of the Jehol oilfields in Northern Chihli proved them worthless, but the report of the two geologists sent to Shensi appears to have been favourable, and a careful survey was then made of the whole of the supposed oilfield. A large staff of geologists, engineers, and drillers was subsequently imported, together with quantities of bulky drilling machinery. The transport of the latter from railhead in Honan through the wilds of Northern Shensi to Yenan and Yench'ang entailed difficulties which seemed insuperable, but was nevertheless successfully accomplished by means of American energy, ability, and driving power. When we passed through Central Shensi on our way to Kansu two years previously, the transport of this machinery, which was just then being undertaken, and the adventures which befell it *en route*, seemed the sole topic of conversation and the only subject of interest in the province. We now saw portions of the same huge pieces of machinery lying apparently useless and abandoned in these wild and inaccessible regions.

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During 1915 wells were sunk near Yenan and Yench'ang, and also apparently in Ansai, Yichün and Chungpu districts in accordance with the hopes held out by the survey; but

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316 no oil was found anywhere except at Yench'ang alongside
471 of the original Japanese well.

Finally in the summer of 1916 work was stopped, the Americans withdrew, and the enterprise was apparently abandoned, the bulky machinery being left behind. Apart from the absence of oil, there must have been many difficulties to contend with in connection with the brigandage and increasing chaos in that region.

The wells have now been filled in, and scarcely a trace of the Americans remains, except for the derelict machinery and the good reputation the surveyors and geologists left behind them amongst the natives, who speak of their departure with great regret and look forward to their ultimate return.

The failure of the enterprise was a bitter disappointment to the local Chinese, for whom the two years were a golden age and who had conjured up visions of railways, roads and pipe-lines, and an era of booming prosperity. Instead of which Northern Shensi now continues as of old to produce little but sand and brigands.

The two original Japanese wells continue to produce oil, and the concern, under official management, flourishes in a small way. Their output is limited by their facilities for refining and transporting the oil, and only one well is therefore usually at work. The oil is sold in the neighbourhood and also across the Yellow River in Shansi, where the people
[492] are more prosperous. Transport is by pack mule over the roughest of mountain trails, and the expense of carriage prevents its penetrating any great distance. It was of course owing to the inaccessibility of the region that it was necessary to find oil in really large quantities to make the installation of a pipe-line, say to the Yangtzu, worth the enormous expense entailed.

487 From Yenan we proposed proceeding east to Yench'ang
133 and to work our way thence somehow or other back to Hsian through Eastern Shensi. Of course everyone said there was no road in that direction, and we knew that the country just west of the Yellow River was likely to prove very rough and poor. But we felt confident that we should as usual always find trails of some kind from one district city to another. As events turned out we found a trail,

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the Kokonor (in Chinese Ch'ing Hai, meaning, like the Mongol name, "Azure Lake"), who used to be known by the Tibetan or Mongol term of "Amban," but who at the time of our visit was styled in the republican manner *Ch'ing Hai Pan Shih Chang Kuan* ("Chief Authority in charge of the Affairs of the Kokonor Territory"). Soon afterwards the post and its occupant, an old Manchu, were abolished by Yuan Shih-k'ai's Government, and the control of the Kokonor territory handed over to the Mahomedan General of Hsining. This control is of the usual vague and shadowy nature, such as has been exercised for so long by China over her outlying dependencies. The Mongol inhabitants are ruled by their own princes under China's overlordship; the Tibetans wander pretty well at will over the territory, robbing one another, the Mongols, and the Chinese, and generally pay but little respect to their nominal Chinese masters. It is possible that the Mahomedans will now take measures to bring them more under control[1].

We remained some days at Hsining, but unfortunately had no leisure to visit either the Kokonor Lake or the famous monastery of T'a-erh Ssu. In the intervals of official business we were hospitably entertained by the Mahomedan General, the Manchu Amban, the Taoyin, and other officials. The former, like most of the Mahomedan leaders we met, was a bluff, hearty soldier and a delightful companion; he had served under T'ung Fu-hsiang at Peking in 1900.

Tanko and Hsining are the headquarters of the great Kokonor wool trade, which has been going on for twenty years or more and has now reached very large dimensions. This wool is produced on the grass lands of the Kokonor border, and is carried by raft and boat down the Yellow River and by camel caravan across the desert to Tientsin, whence it is exported to America. The trade is largely in the hands of the foreign export firms in Tientsin who, through their compradores, maintain buying agencies at various collecting centres such as Hsining, Tanko, Kueitê, Hochow, Hsünhua, Tatung, Yungan, and Épo on the

[1] Such measures have since been taken, with the result that the Tibetans, and more especially the lamas, have on several occasions risen in arms against the Mahomedans, and the peace of the Kokonor border has been seriously disturbed.

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Kokonor border. The wool is usually bought by Mahomedan middlemen, called *Hsichchia*, and passed on by them to the Chinese agents. A similar, but smaller trade, is carried on at collecting centres such as Chungwei, Ninghsia, Shihtsuitzu, Wufang Ssu, and Huamach'ih on the borders of Mongolia in the north of the province, but this Mongolian wool is inferior in quality to the Kokonor produce.

The immense journey made by this wool from the Kokonor to Tientsin is only rendered commercially possible by the Treaty right exercised by foreigners of bringing produce down to the coast from the interior under transit pass, which exempts the goods from taxation by the likin barriers *en route*, a fixed transit duty being paid to the Customs at the coast. This arrangement is all right when the provinces are knit together under a strong central government and when the finances of the country are national rather than provincial; under a loose federal system of semi-independent provinces, however, into which China appears at times to be drifting, the authorities of a distant interior province like Kansu can scarcely be expected to look with favour on an arrangement by which the most valuable trade in the province is in theory immune from all local taxation.

We purchased ponies at various places during our long journeys as we required them; one of the best I secured was acquired at Hsining. These Kansu ponies are bred on the grass-country of the Kokonor, and the two chief collecting centres for horse flesh are Hsining and T'aochou, especially the latter. They are of an entirely different breed to the East Mongolian pony so well known in the Treaty ports. The Kansu pony is much finer in appearance though not so strongly built or as good a weight carrier at fast paces as the Kalgan pony; and being usually handled at an earlier age he is generally more civilized. For the purposes for which they are required, that is to say long road journeys at four miles an hour or so, the Kansu ponies would be difficult to beat anywhere, doing twenty to thirty miles a day for weeks or months on end, with the roughest of stabling, and on a diet of chopped straw, bran, and peas. A *Pei K'ou Ma* (pony from the Northern Passes, i.e. from Kalgan) is considered of little account in Kansu, and

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CHAPTER XV

RAILWAY PROJECTS IN SHENSI AND KANSU

The Lung Hai Railway—The T'ung Ch'eng Railway—The Kuei-hua-Ninghsia Railway—The Han Valley Railway—Other possible railway routes.

NOT a single rail has yet been laid in the whole of the vast region of N.W. China covered by the provinces of Shensi and Kansu, though the need of railways is keenly felt both for commercial and political reasons. In the absence of waterways, such as exist throughout Central and Southern China, means of communication are limited to carts and pack animals, methods of transport which are both slow and expensive, while the vast numbers of ponies and mules employed consume a large proportion of the grain grown in these provinces. This absence of proper means of communication cannot but prevent the commercial development of the whole region, and encourages brigandage and political instability. There is no more vitally urgent reform waiting to be carried out in China than the construction of railways to outlying parts such as Szechuan, Shensi and Kansu. It seems safe to assume that nowhere in the world are there such vast, well-populated, and comparatively wealthy areas still without railways of any kind. Four trunk-lines have been projected through Shensi and Kansu, and there are openings for others. The four projects will first be discussed, in the order in which the concessions or contracts were obtained, for needless to say they are all foreign enterprises.

(1) The Lung Hai Railway from Kansu to the coast, and its extension west to the confines of Turkestan.

In 1912 a loan agreement was arranged between the Central Government and a Belgian Syndicate (Compagnie Generale de Chemins-de-fer et Tramways) for the construction of a trunk-line from Haichou on the coast of North Kiangsu to Lanchou Fu in Kansu, a distance of more than 1000 miles, with the option of an extension to Suchou in the extreme west of the latter province. The line was to be an

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499 471 extension east and west of the existing Kaifeng Fu Honan Fu Railway (called the Pien Lo). Lung is the classical name for Kansu province.

In 1917 the construction of this railway westwards from Honan Fu had reached, and stopped short at, the village of Kuanyint'ang, half a day's march beyond the district city of Miench'ih Hsien in Western Honan, and about three 000 marches short of the Shensi frontier at T'ungkuan. From here the route projected is somewhat as follows. Through or across a range of mountains to Shenchou on the Yellow River and thence along the big road to T'ungkuan. This stretch presents no great engineering difficulties after the passage of the Kuanyint'ang range, presumably by a tunnel, beyond some deep cuttings in the loess, especially as T'ungkuan is approached. From the Honan-Shensi border the line will cross Shensi from east to west following the fertile valley plain of the Wei River. This section is flat and open, and much of the way the only work required will be an embankment and a number of small bridges across the streams which flow down from the Ch'inling Shan into the Wei River, the railway keeping to the south of the latter. Traffic will be heavy and remunerative, and the towns touched at will include the great metropolis of the North West the city of Hsian Fu. From the Shensi-Kansu border near Fenghsiang Fu the line will probably keep as much as possible to the Wei valley up to Kungch'ang and Weiyuan, whence it will pass through the watershed between the Wei and T'ao rivers to Titao. From Titao it can either follow the T'ao River down to the Yellow River, or, more probably, it will cut through the mountains direct to Lanchou Fu. This stretch contains a great many serious engineering obstacles, and is said to entail more than forty kilometres of tunnels; nevertheless it is apparently the easiest way of ascending the three to four thousand feet from the plains of Shensi to the plateau of Kansu, and is certainly less formidable than the existing high road *via* P'ingliang, which crosses the Liupan Shan at a height of some 9000 feet, and passes for the rest of the way to Lanchou through most difficult loess country. The chief difficulties met with on the proposed railway route are the Wei River gorges between Paochi in Shensi and Ch'inchou in Kansu, and the passage

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of the two watersheds, between Weiyuan and Titao, and between Titao and Lanchou.

As regards the extension west towards Turkestan, the chief engineering obstacle would seem to be the passage of the Wushao Ling, 10,000 feet; the P'ingfan valley provides an easy approach from the east, but the descent to the west is steep; there may, however, be a way round further north and east, as this range, the backbone of the Nan Shan, falls away in that direction. Further west the line can follow the main road, keeping if necessary a little further north on the edge of the desert, all the way to the frontiers of Turkestan without encountering any serious obstacle.

Generally speaking the Lung Hai Railway is a most attractive proposition through Shensi, but its construction through Kansu is likely to be very costly, and the traffic returns poor. However, sooner or later railway communication is bound to be established between China and Central Asia, connecting up with the Russian line from the Caspian Sea, and such a railway is more than likely to be an extension of the Lung Hai. For, whatsoever this great trunk line may be called, and by whomsoever it may be built, it is pretty well bound to follow the old fortified highway through Western Kansu along the narrow fertile belt between the deserts of Mongolia and Tibet, by which all trade and traffic between China and Western countries was once conducted. With the construction of this important trans-Asiatic trunk line, Kansu province will once more become, what it was in the past, the gateway from China to the West.

(2) The T'ung Ch'eng Railway, from Tatung in Northern Shansi to Chengtu in Szechuan.

In 1913 a loan agreement was arranged between the Chinese Government and a Franco-Belgian Syndicate for the construction of a trunk railway from Tatung in Northern Shansi, down the centre of that province *via* T'aiyuan to P'uchou on the Yellow River, thence *via* T'ungkuan and Central Shensi to Hsian, and thence *via* Hanchung to Chengtu in Szechuan. The period of construction was estimated at five years, but work has not yet been begun. This project is remarkable for its magnitude, but is in other respects not a particularly attractive proposition in view of

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and costly and require much tunnelling. The Chialing River, on the other hand, flows straight down into Szechuan, and a line down its limestone gorges to Kuangyuan, if practicable, is not unlikely to prove the easiest railway route into Szechuan from the north, or perhaps from any side. In that case Hanchung, which is mentioned in the loan agreement as a point to be touched at, could be connected up fairly easily by a line across the Han-Chialing portage in the neighbourhood, that is to say from Yangp'ing Kuan to Mien Hsien. As regards a line south from Hanchung into Szechuan, the mountains on the Shensi Szechuan border in this neighbourhood though rugged and intricate are not to be compared with the Ch'inling Shan as a barrier to communication, and are pierced by a line of gaps followed by the high road with passes less than 2000 feet above the valleys on either side. As regards the line from Kuangyuan through Szechuan to Chengtu, it is only safe to assume that it will not follow the existing high road, admirable as the latter is as an example of ancient engineering work in the mountains. Probably a route will be found down the Chialing Chiang to Paoning or beyond, and thence west to Chengtu.

(3) The Kueihua-Ninghsia-Lanchou Railway to Northern Kansu.

In the autumn of 1916 an American railway group secured the concession or contract for the construction of a certain mileage of railways in China, amongst which was the above line. The Peking-Kalgan-Kueihuach'eng railway, now constructed as far as Feng Chen, a day's march north of Tatung in Northern Shansi, and four marches short of Kueihua, was built by Chinese engineers with Chinese funds provided by the surplus earnings of the fine Peking-Mukden line. It was originally intended to extend this railway from Kueihua Ch'eng across the Gobi to Urga and thence to a junction with the Trans-Siberian line, a scheme which would have entailed years of unprofitable work in the deserts of Mongolia while many densely populated regions of China Proper were crying for railway communication; the present American project consists in a more useful extension of the same line in another direction, namely to the fertile plains of Ninghsia in Northern Kansu.

From the present railhead at Feng Chen to Kueihua

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(000) Ch'eng the line, if it follows the main road, will pass throu mountainous but not difficult country. From Kueihua Paot'ou it will run across flat corn-growing prairies, wh the only work required will be an embankment. On Kueihua and Paot'ou are reached there should be a fai remunerative goods traffic, since this road carries a la trade to and from the vast north-west hinterland Mongolia and Turkestan, whence camel caravans debou into China Proper at these two points. From Paot'ou Ninghsia will be flat going all the way except for the passa of the low ranges on the Kansu-Mongolia border n Shihchu Shan (Shihtsuitzu). This section will follow alo the northern bank of the Yellow River, through a regi which though partly desert contains an increasing populati of Chinese settlers, and which is probably capable of gre agricultural development with the assistance of irrigati works. Once Ninghsia is reached the trade of Nort Western Kansu will be tapped, and, if it can compe successfully with the cheap transport by Yellow River bo and camel caravan across the desert, the railway will ca large quantities of wool collected from the grass-lands Mongolia and the Kokonor down to Tientsin. Fro Ninghsia to Chungwei the line will run up the fertile a thickly populated plains along the Yellow River, with fl going all the way save for the passage of a low range n Kuangwu. The local traffic on this section should be hea and remunerative, and the connecting of these isolated b comparatively wealthy plains by rail with the coast will an event of great political and commercial importance North China. From Chungwei to Lanchou the line wou run through desert mountain country and will be neith easy nor profitable to construct until the capital is reache An easier route, but also across desert, leads from Chungw to Liangchou along the ruins of the Great Wall. On t whole this railway project is a not unattractive proposition though there are many other regions in China where railwa construction is far more imperative, and would be far mo remunerative.

471 It is understood, however, that the above project h
499 been abandoned as far as the American group is concerne owing to the discovery that another Power possess

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previously existing rights regarding the provision of funds for railway construction in that northern region should the Chinese require the assistance of foreign capital for the purpose.

(4) The Han Valley Railway.

As mentioned above an American railway group secured in 1916 the contract for the construction of a certain mileage of railways in China, but when it came to deciding on the actual lines to be so constructed, it was found to be no easy matter to avoid the previously existing railway rights of other Powers. Eventually, however, it was announced in the press in the spring of 1917 that a line from Laoho K'ou in Hupei up the Han valley into Southern Shensi, and across the divide south into Szechuan, had been fixed upon as one of the railways to be constructed by the American group. This line, opening up as it will the rich but backward upper Han valley, and thence penetrating into Szechuan, the goal of so many unrealised railway projects, from the north, is one of the most interesting and attractive of the many projected lines in China. Its passage up the Han valley should be highly remunerative, while the goods and passenger traffic likely to be secured by a line tapping the rich province of Szechuan has always been held by the planners of Chinese railways to be worth the greatest efforts.

From Laoho K'ou to Hsingan there appears to be the choice of two routes, neither very difficult, namely following the Han River to within a few marches of the latter city, or else outflanking the mountains on the Hupei-Shensi border by following a natural gap further west *via* Chuchi and Pingli. From Hsingan westwards the valley plain of the Yo River leading to Hanyin provides a natural railway route which outflanks the awkward mountain gorges of the Han River in this neighbourhood. From Hanyin a short tunnel will be required to regain the Han at Shihch'uan, whence there would seem to be no alternative, at any rate for the first part of the way, to a route along the difficult Han River gorges in order to gain the eastern end of the Hanchung plain, one of the most fertile and richest regions in China, near Yang Hsien. The latter portion of these gorges might perhaps be avoided by following a route *via* Hsihsiang, a rich and important city worth touching, and thence up the